DESCRIPTION OF PROPOSED RESEARCH IN NON-TECHNICAL LANGUAGE

Cystic fibrosis (CF), the most common inherited disease in North America, is caused by problems in a gene known as "CFTR". Normal functioning of this gene is required for the movement of water and salt into mucous in the lungs. Persons with this disease have abnormal mucous in their lungs which builds up over time and leads gradually, over many years, to serious lung disease. Attempts are being made to replace the missing gene function using special gene carriers, or vectors, which carry corrected genes into cells. The types of vectors tested in patients so far have a temporary effect and therefore may not be ideal for treating CF lung disease. Our group has developed a different type of vector, called AAV, which is based on a virus that can insert its DNA permanently into the cells that it enters. This vector may provide long term correction of the biological defect seen in cystic fibrosis patients. Our tests of AAV vectors carrying the CFTR gene have shown it to be biologically active and safe in cells in the test tube and in animals.

The study described here will carry this vector forward into its first trials in patients with CF. Doses of vector will be placed inside the nose and dripped into the lung through a long, flexible tube, called a bronchoscope. This trial will be performed in adult men and women with CF, in order to determine whether a functioning CFTR gene can be given to patients using this vector without causing side effects. We hope to use these results in order to design future studies which will attempt to actually treat or prevent lung disease in people with CF.